I CLAIM

1. A data communications system for communicating a data signal formed of successive data elements, said system comprising a transmission node; a reception node; and a link providing a data connection from said transmission node to said reception node;

said transmission node comprising:

(i) a clocking-signal transmitter for transmitting a synchronisation clocking signal to said reception node via said link, said synchronisation clocking signal having synchronising features occurring at a frequency lower than a data element rate; and

(ii) an assembler for assembling elements of said data signal into data frames, each data frame having a plurality of successive data elements of said data signal, for transmission to said reception node via said link, said assembler being responsive to said synchronisation clocking signal so as to set a synchronisation flag associated with a data element having a first predetermined temporal relationship with a synchronising feature of said synchronisation clocking signal;

and said reception node comprising:

(i) a detector for detecting a synchronising feature of said synchronisation clocking signal received from said transmission node;

(ii) a disassembler for disassembling received data frames to regenerate said data signal, said disassembler being operable to detect a data element associated with a set synchronisation flag;

(iii) an output unit for outputting a data element associated with a set synchronisation flag at a second predetermined temporal relationship with respect to said synchronising feature of said received synchronisation clocking signal;

said first and second predetermined temporal relationships being arranged so that a predetermined system latency exists between input of a data element to said transmission node and subsequent output of that data element by said reception node.

2. A system according to claim 1, in which said assembler is operable:

i. to set a synchronisation flag associated with a data frame containing a data element having a first predetermined temporal relationship with a synchronising feature of said synchronisation clocking signal; and

ii. to position such a data element at a predetermined position within that data frame.

3. A system according to claim 2, in which said predetermined position is a first-transmitted data element position within that data frame.

4. A system according to claim 1, in which:

said transmission node comprises a data clock transmitter for transmitting a data clock to said receiving node via said link, said data clock defining said timing of said data elements or components of said data elements; and

said reception node comprises a data clock receiver for receiving said data clock from said transmitting node and for outputting said data elements in accordance with said received data clock.

5. A system according to claim 4, in which said data clock transmitter is operable to transmit a Multipoint Low-Voltage Differential Signalling signal to said receiving node.

6. A system according to claim 4, in which:

said transmission node comprises a combiner for combining said synchronisation clocking signal and said data clock to form a multiplexed clock signal for transmission to said reception node via said link; and

said reception node comprises a demultiplexer for demultiplexing said synchronisation clocking signal and said data clock from said multiplexed clock signal.

7. A system according to claim 6, in which said combiner comprises a timing adjuster for adjusting the timing of a subset of clock pulses of said data clock signal in dependence on a synchronising feature of said synchronisation clocking signal.

8. A system according to claim 7, in which:

said data clock is defined with respect to a periodic reference clock edge;

said transmission node is operable to adjust the timing of one or more clock edges of said data clock other than the reference edges in response to a synchronising feature of said synchronisation clocking signal; and

said reception node comprises a timing deviation detector for detecting timing deviations in clock edges of said data clock other than the reference edges.

9. A system according to claim 1, in which said transmission node is responsive to an externally supplied synchronisation clocking signal.

10. A system according to claim 1, in which said output unit comprises a time delay arrangement, so that data elements from a data frame associated with a set synchronisation flag are output a predetermined delay time after said reception node receives said synchronising feature of said synchronisation clocking signal.

11. A system according to claim 10, in which said predetermined delay time is substantially equal to a latency time required by said transmission node and said reception node to handle a data element for transmission via said link.

12. A system according to claim 1,

said transmission node having:

a frame assembly arrangement operable to receive input data elements at an input data rate and to buffer the input data elements prior to performing a frame assembly operation in which buffered data is retrieved and assembled to form the framed data, said frame assembly arrangement being operable to output said framed data for transmission at a framed data rate;

and said receiving node having:

a frame receiving arrangement operable to receive framed data from said transmission node at said framed data rate and to buffer said received framed data prior to performing frame disassembly to produce output data elements at an output data rate;

in which output of framed data is commenced by said frame assembly arrangement prior to assembly of a complete frame and output of data blocks is commenced by said frame

receiving arrangement prior to disassembly of a complete frame of received framed data.

13. A system according to claim 1, in which said data elements are samples of a one-bit signal.

14. A system according to claim 1, in which said data elements are plural-bit data words.

15. A system according to claim 14, in which said data elements comprise audio samples.

16. A system according to claim 15, in which said data elements are derived from AES3 standard audio sample subframes.

17. A system according to claim 15, in which said data elements are derived from one-bit, delta-sigma modulated audio samples.

18. A system according to claim 4, in which:

said data clock defines the timing of individual data bits of each data word;

said transmission node and said reception node operate in accordance with a word clock, being a sub-multiple of said data clock, to define the timing of individual data words.

19. A system according to claim 18, in which said synchronising feature of said synchronisation clocking signal has a constant temporal relationship to said word clock.

20. A system according to claim 19, in which said reception node comprises a word clock extractor for deriving said word clock from said synchronising features of said synchronisation clocking signal.

21. A system according to claim 1, in which said link is a wired link.

22. A system according to any one of the preceding claims, in which said link comprises the physical layer of an Ethernet link.

23. A transmission node for use in a data communications system for communicating a data signal formed of successive data elements having a reception node; and a link providing a data connection from said transmission node to said reception node;

said transmission node comprising:

(i) a clocking signal transmitter for transmitting a synchronisation clocking signal to said reception node via said link, said synchronisation clocking signal having synchronising features occurring at a frequency lower than a data element rate; and

(ii) an assembler for assembling elements of said data signal into data frames, each data frame having a plurality of successive data elements of said data signal, for transmission to said reception node via said link, said assembler being responsive to said synchronisation clocking signal so as to set a synchronisation flag associated with a data element having a first predetermined temporal relationship with a synchronising feature of said synchronisation clocking signal.

24. A reception node for use in a data communications system for communicating a data signal formed of successive data elements having a transmission node and a link providing a data connection from said transmission node to said reception node;

said reception node comprising:

(i) a synchronisation detector for detecting a synchronising feature of said synchronisation clocking signal received from said transmission node, said synchronisation clocking signal having synchronising features occurring at a frequency lower than a data element rate;

(ii) a disassembler for disassembling received data frames to regenerate said data signal, said disassembler being operable to detect a data element associated with a set synchronisation flag;

(iii) an output unit for outputting a data element associated with a set synchronisation flag at a second predetermined temporal relationship with respect to said synchronising feature of said received synchronisation clocking signal.

25. A data communications method for communicating a data signal formed of successive data elements, said system comprising a transmission node; a reception node; and a link providing a data connection from said transmission node to said reception node; said method comprising the steps of:

said transmission node:

(i) transmitting a synchronisation clocking signal to said reception node via said link, said synchronisation clocking signal having synchronising features occurring at a frequency lower than a data element rate; and

(ii) assembling elements of said data signal into data frames, each data frame having a plurality of successive data elements of said data signal, for transmission to said reception node via said link, said assembling step being responsive to said synchronisation clocking signal so as to set a synchronisation flag associated with a data element having a first predetermined temporal relationship with a synchronising feature of said synchronisation clocking signal;

and said reception node:

(i) detecting a synchronising feature of said synchronisation clocking signal received from said transmission node;

(ii) disassembling received data frames to regenerate said data signal, said disassembling step being operable to detect a data element associated with a set synchronisation flag; and

(iii) outputting a data element associated with a set synchronisation flag at a second predetermined temporal relationship with respect to said synchronising feature of said received synchronisation clocking signal;

said first and second predetermined temporal relationships being arranged so that a predetermined system latency exists between input of a data element to said transmission node and subsequent output of that data element by said reception node.

26. A method of operation of a transmission node for use in a data communications system for communicating a data signal formed of successive data elements having a reception node; and a link providing a data connection from said transmission node to said reception node;

said method comprising the steps of:

(i) transmitting a synchronisation clocking signal to said reception node via said link, said synchronisation clocking signal having synchronising features occurring at a frequency lower than a data element rate; and

(ii) assembling elements of said data signal into data frames, each data frame having a plurality of successive data elements of said data signal, for transmission to said reception node via said link, said assembling step being responsive to said synchronisation clocking signal so as to set a synchronisation flag associated with a data element having a first predetermined temporal relationship with a synchronising feature of said synchronisation clocking signal.

27. A method of operation of a reception node for use in a data communications system for communicating a data signal formed of successive data elements having a transmission node and a link providing a data connection from said transmission node to said reception node;

said method comprising the steps of:

(i) detecting a synchronising feature of said synchronisation clocking signal received from said transmission node, said synchronisation clocking signal having synchronising features occurring at a frequency lower than a data element rate;

(ii) disassembling received data frames to regenerate said data signal, said disassembling step being operable to detect a data element associated with a set synchronisation flag; and

(iii) outputting a data element associated with a set synchronisation flag at a second predetermined temporal relationship with respect to said synchronising feature of said received synchronisation clocking signal.

28. Computer software having program code for carrying out steps of a method according claim 25.

29. A providing medium by which software according to claim 28 is provided.

30. A medium according to claim 29, said medium being a storage medium.

31. A medium according to claim 29, said medium being a transmission medium.